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(54) Automobile Door Lock Striker

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(57) [Claim for Utility Model Registration]

An automobile door lock striker characterized by that one side of a striker is formed by integrally erecting an engaging pillar portion, that is engageable with a latch of a door lock, substantially at a right angle with respect to an attaching plate portion that is fixed to a vehicle body, and both sides of the striker are closely attached and fastened together by at least a portion of a back portion of each engaging pillar portion of each side of the striker.

[Detailed Description of the Device]

The present device relates to a striker which is normally fastened to a vehicle body and which engages with a latch of a door lock main body provided on a door by door closing operation.

A conventional automobile door lock striker is made by forming, by a wire rod or forging, an engaging pillar engageable with a latch, and fixing an engaging pillar to a steel attaching plate that serves as a base plate for attachment to the vehicle body. Generally, crimping is used as a method for attaching the engaging pillar to the attaching plate. However, to prevent a crimping portion from loosening which occurs

in the course of use and to maintain adequate durability under a load applied in a vehicle width direction and a vehicle longitudinal direction, in addition to prevent variances in the strength between products, a special thermal crimping method which attaches the engaging pillar to the attaching plate by heating the engaging pillar end portion for easier crimping deformation has been used.

Therefore, special equipment for crimping is required, and it takes a long duration of time and consumes a large amount of energy such as electric power to heat the engaging pillar end portion up to an appropriate temperature. Consequently, this results in drawbacks, that is, a poor workability and a high cost.

In order to solve the aforementioned drawbacks, it is an object of the invention to provide an automobile door lock striker with high productivity by producing a set of striker in the following method. One side of the engaging pillar portions of the striker is integrally formed with the attaching plate, and both sides of the striker are fastened together at a back portion of each engaging pillar portion. Accordingly, a need to attach the engaging pillars to the attaching plate can be eliminated, thus enabling production of the door lock striker with a high strength at low cost.

Hereinafter, embodiments of the present device are described with reference to the drawings.

First, a first embodiment of the present device is described referring to FIG. 1. A numerical symbol 10 represents an overall striker. A plate 11 has, in an integrated form, an engaging pillar portion 11b bent substantially at a right angle with respect to an attaching plate portion 11a. Facing the plate 11 while taking the engaging pillar portion 11a in a longitudinal direction as an opposing face, a plate 12 has an attaching plate portion 12a and an engaging pillar portion 12b. The plate 11 and the plate 12 are closely attached together by a rivet 13 at a back portion of respective engaging pillar portions 11a and 12a.

Numerical symbols 11c and 12c respectively represent attaching holes to a vehicle body (not shown). Holes 11d and 12d formed on the respective plates 11 and 12 are formed as a single hole by being attached together by the rivet 13, which serves as an engaging hole that engages with a latch (to be described later) of a door lock main body. Notches 11e and 12e formed on end faces of the engaging pillar portions 11b and 12b serve to facilitate easy engagement with an engaging groove (to be described later) of the latch.

Next, a second embodiment of the present device is described with reference to FIGS. 2 and 3. The back portions of the engaging pillar portions 11b and 12b separate with each other from a closely-attached state towards the rear portion thereof, thereby

forming a gap 14. The front portions are fastened by a rivet 13 which is substantially equivalent to that in the first embodiment. The rear portions are fastened by a rivet 14' a body portion of which is exposed to the gap 14 and which has a diameter that increases in proportion to the rivet 13. The separated portions of the engaging pillar portions 11b and 12b can come into contact with a buffer 17 which is an elastic body attached to an end of a striker entering opening 16 of the door lock main body. These will serve as bumper portions 11f and 12f.

The second embodiment is equivalent to the first embodiment in that the engaging holes 11e and 12e facilitate easy engagement with the engaging hole 18a of the latch 18 of the door lock main body 15. A numerical symbol 19 is a ball for engaging and disengaging the striker 10 and the latch 18.

Now, operations of the first and second embodiment of the present device will, all together, be explained with reference to FIG. 3. Through door closing operation, the latch 18 of the door lock main body 15 fixed to the door comes closer to the striker 10 and then relatively enters into an engaging groove 18a of the latch 18 from the notches 11e and 12e, and the engaging pillar portions 11b and 12b thereby engage with the engaging groove 18a. Accordingly, the latch 18 rotates and an end portion of the latch 18 is inserted in and engaged with the holes 11d and 12d, thereby closing the door completely. This prevents coming-off of the left side of the striker 10, in other words, restricts the door opening.

In addition, in the second embodiment, immediately before the door comes into the fully closed state, the bumper portions 11f and 12f of the striker 10 come into contact with and engage with the buffer 17 of the door lock main body to completely close the door. Therefore, the looseness in the door closed state can be prevented.

Furthermore, third and fourth embodiment of the present device are described with reference to FIGS. 4 and 5. These embodiments differ from the first and second embodiments in that the striker is formed of one continuous piece of plate.

According to the third embodiment as shown in FIG. 4, the striker 20 is formed by forming a protruding portion which serves as the engaging pillar portion from one piece of plate 21 without requiring the rivet 13 of the first embodiment. The back face of the protruding portion is folded and closely attached together to form an engaging pillar portion 22 integrally with the plate 21 which serves as the attaching plate. The rest of the structure is the same as in the first embodiment.

Furthermore, according to the fourth embodiment as shown in FIG. 5, the striker in the third embodiment is provided with a bumper portion 23 on both wall portions of the engaging pillar portion 22 as in the second embodiment. The fourth

embodiment is same as the third embodiment in that the overall striker is formed of one continuous piece of the plate 21.

Moreover, operations of the third and fourth embodiments are exactly the same as in the case of the first and second embodiments, respectively.

As described above, in accordance with the present device, the attaching plate portion is formed integrally with one side of the engaging pillar portions, and the back portions of the respective engaging pillar portions on both sides are fastened together to form a set of striker. In consequence, excellent effects can be obtained in practical use, such as that the striker with a high strength can be produced at a low cost and high productivity.

[Brief Description of the Drawings]

FIG. 1 is an explanatory drawing which illustrates a first embodiment of the present device. FIG. 2 is an explanatory drawing which illustrates a second embodiment of the present device. FIG. 3 is an explanatory drawing which illustrates an operation state of the present device. FIG. 4 is an explanatory drawing which illustrates a third embodiment of the present device. FIG. 5 is an explanatory drawing which illustrates a fourth embodiment of the present device.

10... STRIKER
11a, 12a... ATTACHING PLATE PORTIONS
11b, 12b... ENGAGING PILLAR PORTIONS